National Aeronautics and Space Administration
Goddard Space Flight Center

Inside Wallops

Wallops Flight Facility, Wallops Island, Virginia | Volume XX-00 | Number: 24 | June 5, 2000

Refined NASA Technology May Replace Dentist's Drill

In the near future, a laser device inspired by NASA may replace the dentist's drill. Flip a switch and it will also replace the dentist's razor-sharp scalpel. Best of all, it's virtually painless and requires no anesthesia for most patients.

Lasers exist today that work on hard tissue like teeth to prepare the tooth for filling, and on soft tissue for gum treatment and oral surgery. But none do both, and buying two laser systems is expensive, which is one reason why only 5 percent of approximately 140,000 U.S. dentists use a laser system.

NASA inventor Keith Murray checks out the laser technology that promises to make painless dental lasers affordable for dentists and their patients.

Researchers at NASA's Langley Research Center have demonstrated that the two laser wavelengths important to dentists can be produced from a single, easy-to-use system.

"The system is simple because we've already done all the complex physics in the lab," said Langley laser researcher Keith Murray, one of three inventors of the dental laser technology. The other inventors are Norman Barnes, also of Langley's Laser Systems Branch and Ralph Hutcheson of Scientific Materials Corp., Bozeman, MT.

Both wavelengths can be produced using the same hardware, dramatically reducing cost and complexity. Dentists can switch between the two by selecting the amount and rate of energy pumped into the specially designed laser system. The resulting hardware is about one-half the size of two distinct laser systems and does not require the laser system to be "tuned" by the operator like typical present-day systems.

A typical hard tissue laser costs about $38,000, and a soft tissue laser costs around $25,000. The dual wavelength unit made possible by this new technology is expected to cost less than $30,000.

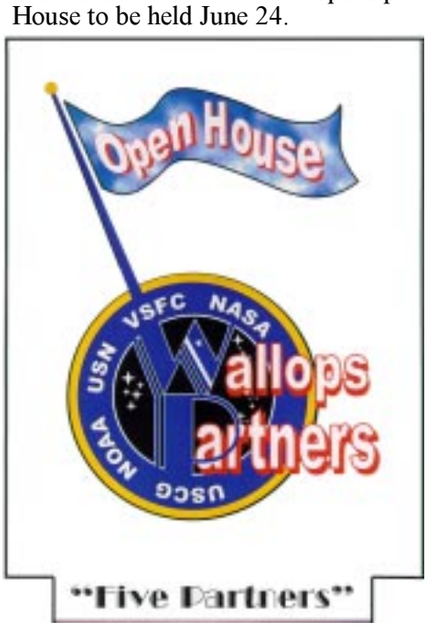
Lantis Laser, Inc., Hewitt, NJ, is working with NASA Langley to refine the technology to explore its potential as a commercial dental laser product. Under the terms of a Space Act Agreement, a Lantis scientist will perform research in a Langley laboratory with help from the technology's inventors. Assuming Food and Drug Administration (FDA) approval of the technology by mid-2001, the goal is to begin sales of the device by the end of 2001.

Dr. Craig Gimbel is a dentist, co-founder of Lantis and a principal investigator for the FDA clinical trials that led to the May 1997 approval of lasers for hard-tissue dentistry. Dr. Gimbel believes both patients and dentists would find much to like about a dual-wave dental laser.

The discovery of the two-wavelength technology is a spin-off of work to develop high power lasers for remote sensing of the atmosphere, a key element in NASA's atmospheric sciences mission. The technology has also been used in aeronautics research including measurements of winds, wind shear and turbulence in flight and measurement of wake vortices from the ground in airport terminal areas. Those investigations led to the discovery that it is possible to selectively produce two or more useful wavelengths from a single laser source.

And the winner is.....

Congratulations to Pete Bradfield, Aircraft Office, who submitted the winning entry in the Open House Logo Contest. Employees voted on 12 submissions on May 28. The logo will be used on publications, news releases and handouts for the Wallops Open House to be held June 24.



Open House: Three Weeks and Counting

The Wallops Flight Facility will open its doors to the public from 9 a.m. to 5 p.m. on June 24 to showcase the many different activities conducted here.

Wallops Partners (NASA, Navy, NOAA, Coast Guard and the Va. Space Flight Center), contractors and customers will participate in the first open house at Wallops since 1995.

The day's activities include tours of NASA, Navy and NOAA facilities; more than 30 exhibits; aircraft and UAVs on display; a model rocket demo; a kid's activity tent; fire fighting demonstrations and the Millsboro Fire Department Smoke House; the Navy Seal Dive Tank; the Navy Combo band; the Coast Guard Drill Team; the NASA Technology Utilization trailer; and the Coast Guard sponsored NASCAR of Winston Series driver Jerry Nadeau.

The event will occur rain or shine.

Volunteers are still being sought to help staff the Island and Main Gates, the kid's tent and an information booth. If employees can spare just one hour to help, it will allow everyone to take part in the activities. To volunteer, call the NASA Public Affairs Office at x1584.

Also, general aviation enthusiasts will be allowed to fly in for the Open House. For more information and to register, call McKeva Scarborough at x1139.

The following is a basic schedule of events for the day.

Fun Run	8 a.m.
Main Base	9 a.m. - 5 p.m.
Smoke House	9 a.m. - noon
Wallops Island	9:30 a.m. - 2:30 p.m.
AEGIS tours	10 a.m. - 2 p.m.
NOAA tours	10 a.m. - 2 p.m.
F-10 tours	10 a.m. - 4 p.m.
Aircraft depart	3:30 - 5 p.m.

Wallops Shorts.....

Safety Office Acting Chief

Robert J. Beyma has been appointed acting chief of the Safety Office and will serve in this position until a permanent placement is named.

Fire Department Responses

May 25 - June 1

Aircraft Stand-bys — 17
Ambulance Calls — 1
Fire Alarms — 1
Mutual Aid Assistance — 1
Assistance for two accidents on the Chincoteague causeway.

May Weather Summary

by Bob Steiner, Meteorologist

Although temperatures during May were warmer than average, by nearly three degrees, breezy conditions and clouds made it feel much cooler. The highest temperature recorded for the month was 90 degrees on May 7, which also set a record high for the date. Another daily record high was set on May 6 when the temperature reached 87 degrees. A reading of 89 degrees on May 13 tied the previous record set for that date. During the month, there were 10 days when the temperature was 80 degrees or above. The coldest temperature, 42 degrees, for the month was 42 degrees recorded May 1.

Rainfall totals for the month, 3.05 inches, were slightly below normal. The greatest amount 1.47 inches fell on May 28 and 29. Measurable rain fell on 11 days, a little less than the average of 10 days.

Looking forward to July, we can expect average temperatures in the low 80s at the beginning of the month warming into the mid-80s by the middle of the month and cooling slightly by the end of the month. The record high of 101 degrees occurred on July 10, 1993. The record low of 51 degrees was set on July 2, 1965. There are usually 10 days during July with measurable rainfall totaling 3.45 inches.

The 2000 hurricane season began June 1 and is expected to be more active than normal. Also, the Bermuda High should be well established by July and bring many days of bright sunshine and hopefully cool sea breezes. A thick haze also lingers along the Delmarva Peninsula coast during this period. Do not be deceived about the danger of over-exposure to the sun. Limit outside activity to the early part of the day, late afternoon and evening. When at the beach or on the water stay in the shade as much as possible and keep a sharp eye on any changing weather patterns.

Retail Sale Of Surplus Computers

June 21, 2000
10:30 a.m. to 1 p.m.
Registration begins at 8 a.m.
Building F-3

Inspection: June 21
9:30 to 10:15 a.m.

Information: Call Terry Ewell, x1133

Items include: Pentium and power Mac computer systems (includes monitor, CPU, keyboard and mouse); individual color monitors; laser printers; 486 and Pentium laptops; Macintosh Powerbooks

Systems are already priced, and must be paid for by 1 p.m. The next retail sale and auction will be in August.

Wallops Health Fair 2000

A Healthy Start for the New Millennium

The Health Unit and the Employee Assistance Program will host the first Annual Wallops Health Fair on June 15 between 10 a.m. and 2 p.m. in the Building D-10 gymnasium. Stop by for bone density and blood pressure screenings, information on acupuncture and massage therapy, as well as local resources for child and elder care. More than 15 community resources will be available to answer questions and provide information. In addition, the following workshops will be held in the Williamsburg Room, Building E-2:

10:15 a.m. - 11:15 a.m.
Living Wills
11:30 a.m. - 12:30 p.m.
Make the Most of Your Money
12:45 p.m. - 1:45 p.m.
Ergonomic Seminar

For more information, contact the Health Unit, x1266.

Notes from the Gardner

Starting a Compost Pile

Composting is a great way to recycle organic matter to replinish the soil with need nutrients.

- Use a bin with front slats that can be removed to provide easy access to the compost. Build the pile on level, well-drained ground at least two feet away from trees and buildings. Pick a spot in the shade, away from your garden so slugs and other pests can't use it as a refuge. Place a six-inch layer of twigs at the bottom.

- Add equal amounts of materials rich in carbon (straw, dried leaves, wood chips) and nitrogen (fresh weeds and grass clippings, kitchen scraps).

Build the pile 3 to 5 feet high and wide, wetting the layers as you go. Then wait. If the pile starts to smell of ammonia and drips water when you squeeze a handful, turn it and add more carbon-rich materials. If it resembles a cold lump, add nitrogen materials and check the moisture. If the pile isn't as wet as a wrung-out sponge, add water and loosen the pile to allow the water to penetrate it. If the pile heats up, you're doing great. Once it's cool to the touch, turn it, moving the outside layer to the middle and vice versa. The pile should reheat. Continue this turning process until the pile stops heating up.

Project Leadership 36

July 30 - August 4, 2000
Wallops Flight Facility

Project Leadership provides an understanding of management principles, tools and techniques at the task level through discussion and a hands-on task simulation exercise. Topics covered are staff/line responsibilities, risk management, work breakdown structure, communication, planning, and directing.

This course is a residential program. NASA Headquarters will cover meals and accommodations.

Complete the APPL nomination form found at http://appl.nasa.gov/training/nomin.htm, including your supervisor's signature, and forward to your Center's Training Office for processing no later than June 12, 2000.

Sympathy is extended to the family and friends of Don Paterson who died May 11, 2000 in Las Cruces, NM. Paterson retired from the Sounding Rocket Projects Branch on Aug. 3, 1993 as NASA's on-site representative at the White Sands Missile Range, NM.

Wallops Exchange

"Tangier Island Girl," a unique collection of stories, sayings, facts and recipes is now available for sale in the Exchange, Bldg. E-2.

Also, coming soon —

A newly designed NASA Wallops Flight Facility sounding rocket tee-shirt and two new baby rompers will be available for sale by June 23.

Inside Wallops is an official publication of Goddard Space Flight Center and is published by the Wallops Office of Public Affairs, Extension 1584, in the interest of Wallops employees.

Editor Betty Flowers
Printing Printing Management Office

http://www.wff.nasa.gov